

OCEAN POWER PLANT SYSTEM FOR PRODUCING, STORING AND CONSUMING OF RENEWABLE ENERGY

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ABSTRACT A power plant concept for the production and use of renewable energy of the size of 100 MW is presented. This power plant uses various state of the art technologies of the field of renewable energies and integrates them as much as possible. Various plants are put on a floating support structure to produce power using renewable energy efficiently, e.g. wind, ocean waves, ocean thermal energy. The goal is to use all renewable energy flows available at the single location. Directly attached processes for the production of e.g. hydrogen, methanol, ammonia and drinking water use the won energy in order to produce products in the industry capacity. This study researches the technical, ecological and economic aspects and estimates the potential realization of the ocean power plant. The experience with offshore plants, ocean technology engineering and ship engineering in connection with renewable energy plants on shore are the basis on which power stations can be further developed for the optimal use of renewable energy. In this field there is an immense potential for innovation. Neither the currently available individual systems nor a combination of these plants fulfill the requirements of an integrated ocean power plant that can make optimal use of renewable energy yet. However, the basic components will be soon accessible. Further studies should investigate options of combining renewable power plants and production processes.

Keywords: Desalination Systems, Hydrogen, Renewable Energy,

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